

EARLY GREEK PHILOSOPHY AND ANCIENT CONCEPTS OF MENTAL HEALTH

An Evolutionary Analysis

A Senior Honors Thesis

Presented to

the Faculty of the Department of Classics

University of Hawaii

In Partial Fulfillment

of the Requirements for the Degree

Bachelor of Arts with Honors

by

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June 1967

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Latin 394-395
Dr. Alfred Burns
Spring 1967

OUTLINE

Central Idea: The classic Greek and Roman attitudes toward mental disorders were intimately related to philosophical attitudes, and underwent a parallel evolution.

I. Statement of Examination

- A. Reason for inquiry and study
- B. Scope and extent of treatment

II. Background

- A. Philosophic basis of concept of mind
- B. Interrelation of philosophy with science: nature of the elements
- C. Identity of mental disorders with physical disorders in antiquity
- D. Definition of analysis

III. Evolutionary Analysis

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- 1. Ionian School
 - a) Thales
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 - c) Anaximines
- 2. Xenophanes
- 3. Heraclitus
- 4. Pythagoreans
 - a) Philolaus
 - b) Parmenides

5. Alcmaeon of Croton
6. Empedocles
7. Anaxagoras
8. Leucippus
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10. Diogenes of Apollonia
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1. Asclepiades
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IV. Abstracts

A. Developmental pattern

B. Concordance of views

In the first century B.C., Titus Maccus Plautus, a Roman dramatist, presented a contemporary view of insanity in his comedy, the Menaechmi. In Actus V, his principal character, Menaechmus, feigns insanity. A doctor is summoned, who questions Menaechmus about his symptoms. He quires whether Menaechmus has drunk light or dark wine, whether his eyes are hard, whether his innards make noise, whether he sleeps soundly, etc. He suggests a therapy of hellebore and physical coercion. In the hundred or so lines,¹ it is interesting to note the similarity of the concepts expressed by Plautus with that of the introspective school of psychology in recent years; that is, a systematic analysis of experience by the individual who examines himself in retrospect with the aid of the inquirer in all pertinent aspects concerning the possible nature of his ailment.²

This remarkable similarity raises a question of how the ancient Greeks and Romans arrived at their concepts of the mind and of mental disorders. It would appear that this field must have been developed through a long evolutionary system as had other aspects of Greek and Roman thought, due to the comprehensive and "logical" treatment of the subject.

Due to the time span and the number of individuals involved, we shall have to limit this treatment to the more significant thoughts and ideas from the origins of this question to the great Roman physician, Galen of Pergamum, in tracing this evolution.

¹loc. cit., Actus V, ll. 890-956.

²John C. Flugel, A Hundred Years of Psychology (New York, 1964), p. 197.

We shall see that mental disorders were identified as a class of physical disorders; at first, because philosophers held that all things arose from the physical elements; and later, because they were felt to be derived from an imbalance of physical things. Hence, insofar as these two (i.e., physical and mental disorders) are so intimately related, it is sufficient to examine the various concepts of the physical nature of the universe as related to the structure of medicine, mental disorders, and the nature of the mind.

The Oxford Classical Dictionary in its article on medicine gives as causes of diseases the disturbance in the balance of the humors, injudicious modes of life, and exposures to climatic changes.³ We shall see in our subsequent treatment that these were partial causes, but not the only ones; that they were only abstracted causes from a development of over six centuries of study and speculation.

In a paper entitled So Called Primitive Medicine and Religion, David Bidney suggests that in pre-scientific medicine, the medicine man treated his patient as a person, as a psychosomatic unit, although he overrated the mental aspects of the patient's condition, he continues, and had no clear appreciation of the natural cause-effect relationship in the therapy of organic diseases. His patient's maladies stemmed from psychic and cultural⁴ origins, and were amenable to treatment by psychological and cultural means.⁵

³loc. cit. (Oxford, 1949), p. 550.

⁴Our understanding of Bidney's term "culture" is "the sum total of sociological and psychological forces stemming from a group of interacting individuals."

⁵Iago Galdston, editor, Man's Image in Medicine and Anthropology (New York, 1963), p. 154.

Primitive man ascribed disease to the gods.⁶ While medicine was originally religious⁷ (see Asclepius and Apollo), disease was attributed to the anger of some god.⁸

In relation to the soul, as early as the Sixth Century B.C., Burnett holds that Greece has been subjected to religious influence which had separated the soul from the body and had set up rites for the soul's purification and release.⁹ In the early stages of human thought, there was no sharp opposition within the religious ideology or practice of an immaterial spirit soul to the physical body.¹⁰

Later, philosophy superseded religion, and the desire to find a uniformity in the multiplicity of phenomena led to guesswork and to neglect of fact in the attempt to frame a comprehensive theory.¹¹ Nevertheless, beginning from a common basis of mythology, the Greeks developed a scientific view of nature.¹²

However, an examination of the concept of diseases as presented by the ancient writers shows that in early days science and philosophy were almost synonymous, insofar as science was intimately related to the philosophy of the times. Celsus expresses this thought:

At first the science of healing was held to be part of philosophy, so that treatment of disease and contemplation of the nature of things began through the same authorities; clearly because healing

⁶William S. Jones, translator, Hippocrates, Volume I (London, 1923) p. x.

⁷John Heiberg, Mathematics and Physical Science in Classical Antiquity. (London, 1922), p. 178.

⁸Lewis Hull, History and Philosophy of Science (London, 1959), p. 53.

⁹Charles Morris, Six Theories of Mind (Chicago, 1932) p. 13.

¹⁰Ibid., p. 2.

¹¹Jones, p. xi.

¹²George Brett, Psychology. Ancient and Modern (New York, 1928), p. 10.

was needed especially by those whose bodily strength had been weakened by restless thinking and night-watching.¹³

Hence, Jones states that philosophers seventy years after Thales perceived that their theme was related to man and his physical makeup.¹⁴

Finally, as the last point in our comprehensive overview of early ideas, Kirk and Raven suggest that the scientific study of medicine began in the Fifth Century B.C., and that analogies between the world and details of human structure became much commoner then.¹⁵

Our analysis, then, can be defined as an evolutionary study of both philosophical and scientific concepts in ancient times. Insofar as these two are so intimately related, and as a philosophical-scientific dichotomy would not do in our case for coherence, we shall treat this question in a chronological order; not strictly, but insofar as philosophy and medicine developed together.

¹³Celsus, De Medicina, Volume I (Cambridge, 1938) p. 7.

¹⁴Jones, Philosophy and Medicine in Ancient Greece, p. 1.

¹⁵G.S. Kirk and J.E. Raven, The Presocratic Philosophers (Cambridge, 1957) p. 89.

Moving into the foundations of philosophical inquiry, we approach the concept of the nature of things from the Ionian School: Thales, Anaximander, and Anaximines.

Thales, traditionally the earliest Greek physicist,¹⁶ held that water is the basis of all things. In developing this concept, Thales did not appeal to tradition, in the form of either religion or poetry; rather he appealed to experience and sense impressions.¹⁷ Nevertheless, he is indebted to mythology, upon which he based his ideas. It did not occur to him that the basic substrate of the universe could be anything other than material.¹⁸ All things are varying forms of this one primary element.

As this is the first time any monistic concept appears, it might be interesting to delve into greater detail as to its origin. Aristotle suggests that Thales chose water because he saw the essential part played by it in nourishing life.¹⁹ However, Burnett and certain other modern scholars believe that since Thales was interested in climate, his choice of water was governed by his study; that is, his observations of the transformations of water from ice to steam.²⁰ These individuals suggest that Aristotle was mistaken, because biology had not been prominent in those days. Aristotle also suggests that Thales was influenced by mythology; vid. Oceanus and Tethys were the first parents of things.²¹ Of these views, however, the opinion of Aristotle concerning

¹⁶Kirk and Raven, p. 74.

¹⁷Albert Avey, Handbook in the History of Philosophy (New York, 1961), pp. 10-11.

¹⁸Kathleen Freeman, The Pre-Socratic Philosophers (Oxford, 1946), p. 52.

¹⁹Ibid., p. 52

²⁰John Burnet, Early Greek Philosophy (London, 1892), p. 44.

²¹Freeman, p. 53.

biological reasons holds more weight, since biology was then being developed, as we see from Anaximander's works.²²

As the substance of the body is water, death is its drying up; extrapolating, sickness is the incorrect balance of fluid.²³ As Heraclitus Homericus says of Thales:

For moist natural substance, since it is easily formed into each different thing, is accustomed to undergo very various changes.²⁴

He appears to have conceived of soul as a sort of kinetic principle, using as his example the lodestone which he said possessed soul because it moved iron.²⁵

Anaximander, another Milesian, felt a difficulty in having a substrate that was constantly changing.²⁶ He observed the change of the four classical elements: earth, water, air, fire; into one another, but did not think it fit to make any one of these the material substratum.²⁷ Hence, he concluded that the underlying substance is unrestricted. This means that it is indeterminate in reference to quality, eternal, imperishable, and inexhaustible.²⁸ This primary substance he called the Unlimited, since there must be a perpetual supply of material for fresh creation.²⁹ From this Unlimited are derived the two pairs of opposite qualities all mixed together: hot-cold, and wet-dry.³⁰

²²Freeman, p. 52.

²³Kirk and Raven, p. 89.

²⁴Kirk and Raven, p. 90. (Heraclitus Homericus, Quaest. Hom. 22).

²⁵Ibid., p. 98.

²⁶Freeman, p. 57.

²⁷Charles Kahn, Anaximander and the Origins of Greek Cosmology (New York, 1960), p. 163.

²⁸Avey, p. 11.

²⁹Freeman, p. 56.

³⁰Robert Adamson, The Development of Greek Philosophy (London, 1908)

Concerning change, Anaximander suggested a cycle of generation: the separation of opposites from the Unlimited, and their return thereto.³¹ The return of opposites to the non-limited was not a means of replenishing the supply, but a means whereby the antagonism could be re-adjusted; a neutral state in which the opposites cancelled each other.³²

His was the first system in which the concept of opposed natural substances clearly appears. We shall see his influence later in Heraclitus, Parmenides, Empedocles, Anaxagoras, and Alcmaeon.³³

At this point also, Anaximander must be credited with a theory of evolution, somewhat unique in his time. The first living creatures, according to him, were generated from the slime by the heat of the sun, surrounded by prickly barks. Man himself grew in fish or fish-like creatures, till he burst forth out onto the earth. This account is significant because it is the first known attempt to explain the origin of man as well as of the world rationally.³⁴

Anaximenes was the third member of the Milesian School. He suggested air as the basic form of the Universe, and held that water was not proved convincingly enough to be the basic real.³⁵ This air, then, was the universal force from which all natural phenomena could be derived.³⁶ It is a specific ultimate principle; that is, one and

³¹Kirk and Raven, p. 107.

³²Freeman, p. 58.

³³Kirk and Raven, p. 119.

³⁴Ibid., p. 142.

³⁵Avey, p. 12.

³⁶Kahn, p. 147.

boundless. Anaximines's choice was dependent upon his observation of the function of air in support of animal life.³⁷

His substrate was non-limited in quality, but not in quantity. Hence, his definition of change was based on the condensation or rarefaction of this substrate: a difference in density produced the difference in materials. Hence, earth was well-condensed air, while fire was less compact and more rarefied ether.³⁸

We find evidence of this in various writings; one which we can cite is Theophrastus:

Anaximines son of Eurystratus, of Miletus, a companion of Anaximander, also says that the underlying nature is one and infinite like him, but not undefined as Anaximander said but definite, for he identifies it as air; and it differs in its substantial nature by rarity and density ... he too makes motion eternal and says that change also comes about through it.³⁹

His concept of living creatures was that they consisted of simple and homogeneous air or wind.⁴⁰ We may possibly understand that air is the cosmic equivalent of life-soul in man, and possesses the body by permeating the whole of it, and possibly even controls it.⁴¹ This soul which is air holds us together, just as breath and air encompass the whole world.⁴² This latter idea of soul holding together the body has no other parallel in any pre-Socratic source.⁴³ Kirk and Raven consider this mention of soul by Anaximander important, as it is the first pre-Socratic psychological statement, though the actual structure of the

³⁷Adamson, p. 15.

³⁸Ibid., p. 21

³⁹Kirk and Raven, p. 144 (Theophrastus ap. Simplicium Phys. 24, 26)

⁴⁰Ibid., p. 158.

⁴¹Morris, p. 3.

⁴²Kirk and Raven, p. 160.

⁴³Kirk and Raven, p. 161.

soul conceived as breath belonged to an age-old popular tradition.⁴⁴

Xenophanes, whose acme was ca. 540-537 B.C.⁴⁵ continues the Ionian thought and holds that mortals are made of water and earth. Simplicius describes him as saying: "for we all came forth from earth and water."⁴⁶

In about 504 B.C., we find Heraclitus,⁴⁷ who held that changeableness was the only permanent feature of the cosmos.⁴⁸ All things are in flux and this change is the reality forming the very structure of things.⁴⁹ "...For souls it is death to become water."⁵⁰

The essential nature of the Universe lay in being both the same as itself and different from itself. This then is the theory of the identity of opposites.⁵¹ We see here a further development of the theories of Anaximander.

Heraclitus thought only in terms of sense perception. Therefore, to solve his problems, he could utilize only the perceptible substances, qualities, and changes in the world, Therefore, the world-stuff did not underlie phenomena, or exist at a more fundamental level, but rather existed on the same level. His choice, therefore,

⁴⁴Kirk and Raven, p. 161.

⁴⁵Ibid., p. 164.

⁴⁶Ibid., p. 176.

⁴⁷Ibid., p. 182.

⁴⁸Avey, p. 13.

⁴⁹Adamson, p. 44.

⁵⁰Kirk and Raven, p. 205. (Fr. 36. Clement Strom. VI, 17, 2).

⁵¹Fredrick Copleston, A History of Philosophy (Maryland, 1960), Vol. 1, pp. 39-46 passim.

of a substrate was fire, since this is the only substance that can be seen undergoing transformation. Things come out of fire, and are destroyed back into it.⁵² It was the basic, irreducible material element in all things.⁵³ Teuchmuller argues that Heraclitus chose fire instead of water because he perceived fire as the purest and the noblest substance, leaving natural residence in the upper sky, where there is no moisture.⁵⁴ Fire, then, gives rise to water, which in turn generates earth, whence water again comes forth.⁵⁵ This change, and all change, is attributed to the kindling or the extinguishing of fire in varying degrees; and since everything is an identity of opposites, change is always taking place.⁵⁶

His emphasis, then, was on the flux of sensations.⁵⁷

Things taken together are whole and not whole, something which is being brought together and brought apart, which is in time and out of time; out of all things there comes a unity and out of unity, all things.⁵⁸

Waking, sleeping, and death are related to the degree of fireness in the soul; the soul is partly out off from the world-fire when asleep and so decreases in activity.

Heraclitus furthermore developed the assumption, probably implicit in Anaxagoras, that men and the outside world are made of the same material and behave according to similar rules.⁵⁹ He suggested a Reason,

⁵²Freeman, p. 109.

⁵³Philip Wheelwright, Heraclitus (Princeton, 1959), p. 40.

⁵⁴Ibid., p. 39.

⁵⁵Freeman, p. 110.

⁵⁶Wheelwright, p. 42.

⁵⁷Jones, Philosophy and Medicine in Ancient Greece, p. 44.

⁵⁸Kirk and Raven, p. 191. (Fr. 10 [Aristotle] de mundo: 5, 396 b 20).

⁵⁹Kirk and Raven, p. 161.

a Logos, which guides human behavior as well as the changes in the outside world.⁶⁰

About this time there arose a school of thought more or less centered around concepts of numbers, the Pythagoreans. As a whole, they generally believed that the first elements were numbers.⁶¹ The Monad, the original number, was the principle of oneness, limit; it was a dot or point that could be imposed on empty space.⁶² From this Monad, and from numbers, all things were derived.⁶³ In general, the Pythagoreans believed creation to be a universe of perceptibles arising from the Monad.⁶⁴ They held a dualistic theme of Limit and Unlimit; that there are two principles;⁶⁵ that contraries are the principles of things.⁶⁶ While they believed in an immortal soul, they held that it too was an attunement of opposites.

Another theory has been handed down to us about the soul... They say that it is a kind of attunement, for attunement is a blending and composing of opposites, and the body is constituted of opposites.⁶⁷

While the Pythagoreans more or less agreed on certain general concepts, individual thinkers of this school held quite various views.

⁶⁰Morris, p. 3.

⁶¹Adamson, p. 21.

⁶²Freeman, p. 246.

⁶³William Guthrie, The History of Greek Philosophy (Cambridge, 1962), p. 239.

⁶⁴Freeman, p. 250.

⁶⁵Kirk and Raven, n. 240 (Aristotle: Metaphys. A₅ 986b 2).

⁶⁶Copleston, p. 34.

⁶⁷Kirk and Raven, p. 261 (Aristotle: de Anima A₄ 407b 27).

It will be necessary to touch on two of these writers, as their concepts have significant bearing on our study.

Philolaus, who appears about 400 B.C., tried to include medical theory into his philosophical system.⁶⁸ While the body is composed of the hot, he said, during life it inhales cold air so that it may be cooled by it.⁶⁹ He held that disease was due to blood, bile, and phlegm. This theory is a slow development of Alcmaeon's theory of opposites, which we shall examine in detail shortly.⁷⁰

Parmenides (ca. 490 B.C.)⁷¹ asserted that anything that is, always was, since of necessity nothing can come from nothing, and if it arose from being, then there is no real coming to be. Hence Parmenides dismissed change and becoming as illusions.⁷² The primary causes are fire, lightness, darkness, rarity, heaviness, and density, all equal in function and extent; all particulars come into being from the admixture of these causes.⁷³ Being, says Parmenides, is both indivisible and homogeneous.

Nor is it divisible, since it is all alike, nor is there more here and less there, which would prevent it from cleaving together; but it is all full of what is. So it is all continuous; for what is clings closely to what is.⁷⁴

⁶⁸Jones, Hippocrates, Vol. I, p. xii.

⁶⁹Kirk and Raven, p. 312.

⁷⁰Jones, Hippocrates, Vol. I, p. xlix.

⁷¹Kirk and Raven, p. 264.

⁷²Copleston, pp. 49-52 passim.

⁷³Freeman, p. 150.

⁷⁴Kirk and Raven, p. 275 (Fr. 8, l. 22, Simplicius Phys. 145, 23).

His theory of perception was that knowledge depends on the excess of hot or cold.

Parmenides gave no clear definition at all, but said only that there were two elements and that knowledge depends on the excess of one or the other. Thought varies according to whether the hot or the cold prevails, but that which is due to the hot is better and purer; not but what even that needs a certain balance; for, says he, "According to the mixture that each man has in his wandering limbs, so thought is forthcoming to mankind; for that which thinks is the same thing; namely the substance of their limbs, in each and all men; for that of which there is more is thought." For he regards perception and thought as the same. So too memory and forgetfulness arise from these causes, on account of the mixture; but he never made clear whether, if they are equally mixed, there will be thought or not, or, if so, what its character will be. But that he regards perception as also due to the opposite as such he makes clear when he says that a corpse does not perceive light, heat, or sound owing to its deficiency of fire, but that it does perceive their opposites, cold, silence, and so on. And he adds that in general everything that exists has some measure of knowledge.⁷⁵

According to him, it is the same thing that can be thought and that can be; this was the prototype of the absolute idealness.⁷⁶ We shall see that his theory of perception of like by like influenced his successors.⁷⁷

In the midst of all this philosophical speculation concerning the nature of the universe appears Alcmaeon of Croton about 490 B.C.⁷⁸ His emphasis on pairs of opposites in his physics shows his tendency toward the Pythagorean school,⁷⁹ and we may infer that he was the first or the most prominent medical writer known to Aristotle who also em

⁷⁵Kirk and Raven, p. 282. (Theophrastus de sensu I ff.).

⁷⁶Morris, pp. 3-4.

⁷⁷Kirk and Raven, p. 283.

⁷⁸Ibid., p. 232.

⁷⁹William Heidel, Hippocratic Medicine (New York, 1941), p. 46.

phasized the pair of opposites.⁸⁰ Termed the "Father of Greek Medicine" by the New Century Classical Handbook, he was the first to recognize the brain as the central organ of intelligence.⁸¹ While a physician and chiefly interested in physiology, he also touched on other problems that were the realm of the natural philosopher.⁸² Diogenes Laertius says of him:

For the most part his theories are medical, but sometimes he treats of natural philosophy too, maintaining the majority of human affairs are in pairs. He seems to have been the first to write an account of nature.⁸³

His theory of health was based on the physiological balance or harmony of the elements.⁸⁴ While Heidel says we can assume Alcmaeon's idea of the constituents of the body as definite substances possessing definite characteristics,⁸⁵ Alcmaeon suggests in addition an indefinite number of opposites.⁸⁶ His medical practice was based on the notion of equality or preponderance.⁸⁷ He explained health as the equal balance of these opposite powers, while sickness as the preponderance of one of these over the rest,⁸⁸ the disturbance of the elementary opposites in the body: the hot and cold, the wet and dry, etc. This characteristically Pythagorean doctrine had very considerable influence on the pathology of later times.⁸⁹

⁸⁰ Heidel, p. 46.

⁸¹ "Alcmaeon," The New Century Classical Handbook (New York, 1962), p. 12.

⁸² Heidel, p. 42.

⁸³ Kirk and Raven, p. 232 (Diogenes Laertius VIII, 83).

⁸⁴ Heidel, p. 6.

⁸⁵ Ibid., p. 47

⁸⁶ Jones, Hippocrates, Vol. I, p. xlvi.

⁸⁷ Heidel, p. 47.

⁸⁸ Ibid., p. 6.

⁸⁹ Heiberg, p. 107.

Aetius describes Alcmaeon's theory of health:

Alcmaeon maintains that the bond of health is the "equal balance of the powers: moist and dry, cold and hot, bitter and sweet, and the rest, while the "supremacy" of one of them is the cause of disease; for the supremacy of either is destructive. Illness comes about directly through excess of heat or cold, indirectly through surfeit or deficiency of nourishment, and its center is either the blood or the marrow or the brain. It sometimes arises in these centers from external causes, moisture of some sort, or environment, or exhaustion or hardship or similar causes. Health on the other hand is the proportionate admixture of these qualities."⁹⁰

Concerning the soul, Jones considers Alcmaeon the founder of empiric psychology.⁹¹ His most important generalization, perhaps, was that the brain was the center of the intellect, a conclusion probably deduced from his anatomical researches. In this view, he was followed by Plato and Hippocrates later. He also recognized certain ducts by which sensation was carried to the brain.^{91a} His tradition may be accepted as indicating that some work was being done in the Pythagorean schools of the Sixth Century B.C., which we can consider the real beginnings of a physiology of the senses.⁹²

Other modern authors support this idea. An experimentalist, according to Heidel, he discovered the seat of intelligence and the channels of communication.⁹³ It is believed that he asserted that the brain is the organ of the mind.⁹⁴

Based on his concept of the innumerable opposites, the soul in his theory is the attunement of the physical opposites that compose the body.⁹⁵ The essential characteristic of this soul was self-movement.⁹⁶ For him, the soul is immortal, because it resembles things immortal as being continually in motion. Hence, his views seem similar

⁹⁰Kirk and Raven, p. 234 (Aetius V, 30 1).

⁹¹Jones, Hippocrates, p. xi. ^{91a}Brock, p. 6

⁹²George Brett, Psychology, Ancient and Modern (New York, 1928), p. 14.

⁹³Heidel, p. 48.

⁹⁴Brett, p. 14.

⁹⁵Kirk and Raven, p. 23.

⁹⁶William Hammond, translation, Aristotle's Psychology, p. 11.

to those of Thales, Diogenes of Appolonia, and Heraclitus.⁹⁷

Considered the founder of the Sicilian School of medicine,⁹⁸ Empedocles, a physician-philosopher, appeared around 450 B.C.⁹⁹ Influenced by Anaximander, Xenophanes, the Pythagoreans, Heraclitus, and Parmenides,¹⁰⁰ his school of thought encompassed the physical elements or the masses of matter composing the world.¹⁰¹

Important because subsequent Atomist philosophy and views were logical developments of his own ideas, he tried to reconcile the Parmenidean denial of the passage of being into not-being and vice-versa, with the evident fact of change.¹⁰² Nevertheless, he held the point that becoming and passing away is actually not so, since nothing can come from nothing, nor can whatever is, ever be destroyed. This he stated explicitly. But to reconcile observation and Parmenidean philosophy, he suggested four primary substances, two pairs of opposites: hot and cold, and dry and wet;¹⁰³ or from another viewpoint, fire and air, and earth and water. These were uncreated.¹⁰⁴ Nothing in this perishable world has any essential nature, nor has it any end in death. There is only mixing and separation; the former called becoming, the latter, death.¹⁰⁵

⁹⁷Heidel, p. 44.

⁹⁸Ibid., p. 49.

⁹⁹Kirk and Raven, p. 321.

¹⁰⁰Ibid., p. 360.

¹⁰¹Heidel, p. 49.

¹⁰²Copleston, p. 72.

¹⁰³Jones, Philosophy and Medicine in Ancient Greece, p. 10.

¹⁰⁴Kahn, p. 127.

¹⁰⁵Cyril Bailey, The Greek Atomists and Epicurus (Oxford, 1928), p. 30.

Internally, the elements are atomic in structure; that is, they are composed of simple parts which can be, but never are, divided. The elements mix, not by running through each other, but by positioning themselves together like a metal alloy.¹⁰⁶ This is because Empedocles suggests the absence of void. There is only contact and no space. All these atoms or substances are permanent in nature, and undergo no qualitative change.¹⁰⁷ Everything owes its existence to the formula of its constitution,¹⁰⁸ and these things never cease from continually shifting.¹⁰⁹

For it is not our blood, he says, nor the blending of our breath that produced the essential principle of soul; rather, from these ingredients the body is moulded, which is earth born and mortal. Since the soul has come hither from elsewhere, he euphemistically calls birth a sojourn abroad -- the most comforting of all names; but in truth the soul is a fugitive¹¹⁰ and a wanderer, banished by the decrees and laws of the gods.

Matter is always a combination of these atoms, since change is due to two opposing forces, always in conflict: Love and Hate.¹¹¹ Hence, existence is possible only in those intermediate stages, when Love and Hate are in combination.¹¹² Empedocles's rule, then was one of strife.¹¹³

According to Brett, however, his principal emphasis was on breathing and circulation of the blood. While air and blood are considered the bearers of all functions,¹¹⁴ blood is the seat of consciousness assumed to contain love and strife with the four factors. The bloodstream is

¹⁰⁶Freeman, p. 182.

¹⁰⁷Adamson, p. 58.

¹⁰⁸Kirk and Raven, p. 358.

¹⁰⁹Ibid., p. 324 (Fr. 17, 1. 6. Simplicius Phys. 158, 6).

¹¹⁰Ibid., p. 359 (Plutarch de exilio 17, 607 D).

¹¹¹Freeman, pp. 182-183.

¹¹²Adamson, p. 56.

¹¹³Kirk and Raven, p. 345.

¹¹⁴

the physiological agent in thinking, while the soul is an attunement or proportion of the mixture.¹¹⁵ The four elements in opposites controlled medical thought for two millenia.¹¹⁶

Anaxagoras (480-428 B.C.)¹¹⁷ shares with Parmenides a fundamental dualism.¹¹⁸ The elements from which all substances are drawn are infinitely small particles, and are therefore imperceptible except in coagulation. The smallest possible subdivision of this matter will yet be this substance.¹¹⁹ The characteristics of this matter are that it is infinitely divisible, infinitely qualitatively distinct, and infinitely mixed among the elements. These particles are infinite in number, indestructible, and unchanging. Qualitative distinctness is an ultimate fact.¹²⁰ These elementary particles are alike, but not exactly alike, for each contains a portion of everything. Moreover, all things are relative: wherever one quality is, the opposite is also.¹²¹ The elements are so mixed up that no portion of the whole is ever just one or another base, but always a mixture. We see something because we notice only the dominant characteristics, the pre-dominant substances.¹²² Perception, therefore, is by opposites.¹²³

Anaxagoras thinks that perception is by opposites, for like is not affected by like ... A thing that is as warm or as cold as

¹¹⁵Kirk and Raven, p. 357

¹¹⁶"Empedocles", Oxford Classical Dictionary (Oxford, 1949).

¹¹⁷Kirk and Raven, p. 363.

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¹¹⁹Freeman, p. 265.

¹²⁰New Century Classical Handbook, p. 96.

¹²¹Freeman, p. 266

¹²²Adamson, p. 50.

¹²³Kirk and Raven, p. 394.

we are does not either warm us or cool us by its approach, nor can we recognize sweetness or bitterness by their like; rather we know cold by warm, fresh by salt, and sweet by bitter in proportion to our deficiency in each. For everything, he says, is in us already ... Every perception is accompanied by pain, a consequence that would seem to follow from his hypothesis; for everything unlike produces pain by its contact; and the presence of this pain becomes clear either from too long a duration or from an excess of sensation.

Anaxagoras was preoccupied with physiological problems. His theories were due chiefly to his attempt to explain the phenomena of nutrition and growth of organic being.¹²⁴ According to his theories life originated in the moist. Hence, in this, he follows Anaximander. The mind dispersed evenly throughout the mixture, and then began to localize so that there are only some things which possess mind.¹²⁵

These particles, when mixed or blended, neither are manifest, nor cause pain, but when one of them has been isolated and set apart by itself, it both is manifest and causes a man pain.¹²⁶ However, the mind is separate and unmixed. It can move other things.¹²⁷

All other things have a portion of everything, but Mind is infinite and self-ruled, and is mixed with nothing but is all alone by itself. For if it was not by itself, but was mixed with anything else, it would have a share of all things if it were mixed with any; for in everything there is a portion of everything, as I said earlier; and the things that were mingled with it would hinder it so that it could control nothing in the same way as it does now by being alone by itself. For it is the finest of all things and the purest, it has all knowledge about everything and the greatest power; and mind controls all things, both the greater and the

¹²⁴Heidel, p. 49.

¹²⁵Kirk and Raven, p. 393.

¹²⁶Jones, Philosophy and Medicine in Ancient Greece, p. 44.

¹²⁷"Anaxagoras," Oxford Classical Dictionary (Oxford, 1949).

smaller, that have life. Mind controlled also the whole rotation so that it began to rotate in the beginning. And it began to rotate first from a small area, but it now rotates over a wider, and will rotate over a wider area still. And the things that are mingled and separated and divided off, all are known by Mind. And all things that were to be, all things that were but are not now, all things that are now or that shall be, Mind arranged them all, including this rotation in which are now rotating the stars, the sun, and moon, the air and the aether that are being separated off. And this rotation caused the separating off. And the dense is separated off from the rare, the hot from the cold, the bright from the dark, and the dry from the moist. But there are many portions of many things, and nothing is altogether separated off nor divided one from the other except Mind. Mind is all alike, both the greater and the smaller quantities of it, while nothing else is like anything else, but each single body is and was most plainly those things of which it contains most.¹²⁸

In this he is of historical importance, because of his influence on Plato.¹²⁹ He played a definitely psychotherapeutic role, according to Brock, and was described by Plutarch as having stabilized the mind of Pericles.

he taught him to apply Reason to Nature; and, freeing himself from a terrifying and arid superstition, gave him a religion of peace and good hope.¹³¹

For him, then, mind was the ruler which brings order out of chaos, and man was a universe in miniature.^{131a}

As Anaxagoras suggests no void,¹³² change, which is proximately due to movement, must only be rotation. Change is separation and combination; like particles join and unlike separate. Change, therefore, is qualitative, in which unlikes influence one another. There is a trace of the principle of attraction among similars, but more important is that of difference.¹³³

¹²⁸Kirk and Raven, p. 372 (Fr. 12, Simplicius Phys. 164, 24 and 156, 13).

¹²⁹Morris, p. 4. ¹³⁰Jones, Philosophy and Medicine in Ancient Greece, p. 14.

¹³¹Arthur Brock, editor, Greek Medicine (London, 1929), p. 7.

^{131a}Jones, Philosophy and Medicine in Ancient Greece, p. 14.

¹³²Freeman, p. 265

¹³³Adamson, pp. 41-53 passim.

Leucippus, whose writings become significant about 440-435 B.C.,¹³⁴ is considered the originator of the atomic theory.¹³⁵ As this theory will play an important role in future medical concepts, it might be well to treat it in some detail here.

Leucippus held that all things are basically reducible to atoms: homogenous substances, indivisible, and permanent. These atoms exist in the form of discrete particles¹³⁶ which though physically indivisible because they contain no empty space are nevertheless mathematically divisible, since they have magnitude.¹³⁷ These atoms differ in shape and in position and arrangement relative to one another. When they collide, they form a moving entanglement, matter as we see it.¹³⁸

He also suggests two ultimate kinds of existence: full and empty.¹³⁹ These are equivalent to being and Non-Being. Being is not one, but consists of an infinite number of bodies, of infinite shapes, and in constant motion. These, which can be divided, are the atoms. They move about in the infinite void at random in all directions. Not-Being, in contrast, is that in which there is nothing.¹⁴⁰

Since the atoms are in constant motion, there is constant collision and agglutination of the individual particles. This is change, creation and growth. As the atoms join and separate, there is constant coming

¹³⁴Kirk and Raven, p. 403.

¹³⁵Freeman, p. 286.

¹³⁶Bailey, p. 77.

¹³⁷Burnett, p. 356.

¹³⁸Freeman, p. 287.

¹³⁹Burnett, p. 357.

¹⁴⁰Freeman, p. 286.

into being as well as passing away.¹⁴¹

The transition from Leucippus to Democritus (440-430 B.C.)¹⁴² is marked by a more systematic, more definite, and more elaborated atomic theory.¹⁴³ Accordingly, much of the fundamental theses of Democritus resembles those of Leucippus, but with slight modifications or emendations.

According to Democritus, atoms were the basis of all substance. They were invisible bodies, imperceptible, infinite in number, devoid of qualitative differences, and differing in figure, magnitude, arrangement, and position.¹⁴⁴ He abandons the idea that smallness is therefore indestructibility. The sizes of his atoms may vary. Hence, his atoms persist in an infinite variety.¹⁴⁵ There is a difference of density in matter, but this is confined to composite bodies.¹⁴⁶ Atoms are substance, fullness, being; space is emptiness, and unbounded.¹⁴⁷ No atom can come from another, for they are the result of a division at its ultimate point.¹⁴⁸

As far as change is concerned, atoms are in constant motion, due to collision and rotary or vortex motion.¹⁴⁹ As in Leucippus's theory, atoms cleave together due to the variety of their shapes. Each such conglomeration is different because of the differences in the atoms

¹⁴¹Freeman, p. 287.

¹⁴²Kirk and Raven, p. 403.

¹⁴³Bailey, p. 117.

¹⁴⁴Adamson, p. 61.

¹⁴⁵Bailey, p. 125.

¹⁴⁶Adamson, p. 61.

¹⁴⁷Freeman, p. 299.

¹⁴⁸Ibid., p. 300.

¹⁴⁹Adamson, p. 63.

composing them. Such a conglomeration remains stable until it collides with another atom or conglomeration and scatters. Thus is caused change, coming into being, and passing away. Atoms do not change, but merely collide, combine, mingle, and separate. Change of substance, then, in short, is change of place of atoms.¹⁵⁰

Diogenes of Apollonia, who flourished about 440-430 B.C.,¹⁵¹ suggested air as the basic substrate. Intelligence and life are due to air, which takes different forms according to its differences in heat, motion, etc.¹⁵²

Theophrastus describes his concept of pain:

Pleasure and pain come about in this way: whenever air mixes in quantity with the blood and lightens it, being in accordance with nature, and penetrates through the whole body, pleasure is produced; but whenever the air is present contrary to nature and does not mix, then the blood coagulates and becomes weaker and thicker, and pain is produced. Similarly confidence and health and their opposites.¹⁵³

He is also described by the same author as attributing thinking and the senses as also life to air.

Thought, as has been said, is caused by pure air and dry air; for a moist emanation inhibits the intelligence; for this reason thought is diminished in sleep, drunkenness and surfeit. That moisture removes intelligence is indicated by the fact that other living creatures are inferior in intellect, for they breathe the air from the earth and take to themselves moister sustenance ...¹⁵⁴

We shall see how this theory is taken up by later writers and developed into an entire system of medicine.

¹⁵⁰Freeman, p. 301

¹⁵¹Kirk and Raven, p. 427.

¹⁵²Ibid., p. 434.

¹⁵³Ibid., p. 441 (Theophrastus de sensu 43).

¹⁵⁴Ibid., p. 441 (Theophrastus de sensu 44).

He continues in De Flatibus

Accordingly, I consider that the brain has the most power in man. For if it is in sound condition, it is our interpreter of the things that come into being through air; and air provides intelligence. The eyes and ears and tongue and hands and feet do whatsoever the brain determines; for there is an element of intelligence in the whole body, according as each part partakes of air, but it is the brain that is the messenger to the understanding. For whenever man draws breath into himself, it arrives first at the brain, and thus the air spreads into the rest of the body after leaving behind its choicest part in the brain, and whatever of it is intelligent and possesses judgement.¹⁵⁵

With this treatment of Diogenes of Apollonia, we reach the end of the Fifth Century B.C. In retrospect, according to Jones, Greek medicine at this time was characterized by three aspects: First, the religious element had generally been discarded. Second, the philosophical element made free use of unverified postulates in discussing causes and treatment of disorders; and third, a rational element arose, relying on observation and experience. Disease and health depended on environment, and on the constituents of the human frame.¹⁵⁶ Brock holds that the main errors of the pre-Hippocratic thinkers were that they separated man from nature, and failed to see objective and subjective as two aspects of reality.¹⁵⁷ The notable exception, however, was Parmenides, who was aware of the possibility of differences between the subjective sense impressions, and the actual objective conditions of the physical world. In this he is the forerunner of Platonic thought.

¹⁵⁵ Kirk and Raven, p. 442.

¹⁵⁶ Jones, Hippocrates, Vol. I, p. i.

¹⁵⁷ Brock, p. 7.

Hippocrates (ca. 460-377 B.C.) represents the medical theories and practices of the time.¹⁵⁸ While it is generally agreed that an individual by this name lived and wrote, there seems to be considerable discussion as to the authorship of the different works in the Hippocratic Corpus. Nevertheless, this is not of great concern to us here, as we are interested in the medical theories, and not the individuals. Hence, when we speak of Hippocrates, we can just as well speak of the Hippocratic school of thought.

Hippocrates can stand for a period in the development of medical theory and practice in which he bore a leading part between Empedocles and Aristotle.¹⁵⁹ We shall see in our subsequent treatment how he based his theories on earlier philosophies and how much he influenced later thought.

To Hippocrates, as well as to Galen, as we shall see, there were two terms in the equation of life: the Physis or Organism, and the Environment.¹⁶⁰ His principles and those of the Hippocratic school can be summarized as follows: He discarded the philosophical approach and also ancient customs and beliefs. Celsus calls Hippocrates the first to separate medicine from philosophy.¹⁶¹ He held that each effect must have a cause, and this effect is the result of an ascertainable

¹⁵⁸Heidel, p. 6.

¹⁵⁹Ibid., p. 4.

¹⁶⁰Brock, p. 4.

¹⁶¹"Medicine," Oxford Classical Dictionary.

cause. For him, then, observation was the keynote.¹⁶² According to Galen, Hippocrates was concerned with natural etiology and natural prognosis.¹⁶³ Moreover, Plato in his Phaedrus describes Hippocrates as holding that one cannot know the nature of the body without knowing the universal nature.¹⁶⁴

From certain passages in the Phaedo, says Jones, we can assume that Hippocrates was a physician who took the large view, that medicine is to be regarded as a special application of general science; that medicine is the science of the human body as part of the universe; and that body is subject to the laws of the universe and is composed of elements common to the body itself and the world at large.¹⁶⁵

While a great number of writers exercised influence on the Hippocratic school, Diogenes of Apollonia was one of the more influential in suggesting air to be the controlling agent in the body as in the world.¹⁶⁶ We have seen this in the passage from De Flatibus, which we have quoted on page 24.¹⁶⁷

¹⁶²Avey, p. 567.

¹⁶³Paul Harkins, translator, On the Passions and Errors of the Soul (Cincinnati, 1963), p. 13.

¹⁶⁴Heidel, p. 11.

¹⁶⁵Ibid., p. 13.

¹⁶⁶Ibid., p. 31.

¹⁶⁷Kirk and Raven, p. 442.

On the other hand, however, the Hippocratic school rejected the theory that man consists of one element, as well as the theory that one humor caused all disorders.¹⁶⁸ While the theory of health, similar to Alcmaeon, was of humors in correct proportion,¹⁶⁹ we find a difference of opinion within the Hippocratic Corpus itself.¹⁷⁰ In Disease, there are four humors: blood, bile, phlegm, and watery humor; in Affections I, disease is attributed to the action of the four opposites or bile and phlegm,¹⁷¹ and Ancient Medicine suggests an infinite number of humors.¹⁷² Whatever the case, we see here the four elements of Empedocles: earth, air, fire, and water, as the constituents of the body, but associated with four humors: black bile, yellow bile, blood, and phlegm.¹⁷³ And again, while no stress is laid on strife,¹⁷⁴ we find another opinion that all disease is caused by air.¹⁷⁵

The Hippocratics treated the body as a whole, taking into account also the mental condition of the patient.¹⁷⁶ As the physician could not prevent the original misbehavior of the humors, it was his business to watch the course of the disease, notice how nature was trying to correct it, and assist nature.¹⁷⁷ That is to say, while nature is

¹⁶⁸Heidel, p. 54

¹⁶⁹Brock, p. 9.

¹⁷⁰Jones, Hippocrates, p. xi.

¹⁷¹Jones, Philosophy and Medicine in Ancient Greece, p. 47.

¹⁷²Jones, Hippocrates, p. xii.

¹⁷³George Sarton, Galen of Pergamon (Kansas, 1954), p. 52.

¹⁷⁴Jones, Philosophy and Medicine in Ancient Greece, p. 15.

¹⁷⁵Jones, Hippocrates, p. xi.

¹⁷⁶Heidel, p. 54.

¹⁷⁷Lewis Hull, History and Philosophy of Science (London, 1959), p. 54.

the healer of disease, disease must be treated by correcting any disharmony of the humors.¹⁷⁸ His therapeutics seems to have been mainly dietetic.¹⁷⁹

While there are a great number of works in the Hippocratic Corpus, there are a few which are of immediate significance to us, and which are quite pertinent to the discussion at hand.

In the Nature of Man, we see the Empedoclean influence in the four humors suggested as part of body. These four humors are not the four elements of Empedocles, however, but are analogous and perform analogous functions. Health is the harmony of these humors in correct proportion.¹⁸⁰

The writer of Ancient Medicine suggests that hot, cold, dry, and moist are not substances, but rather powers of secondary importance. The body has certain essential $\chi\upsilon\mu\upsilon\iota$ which have properties or powers with greater influence on health than temperature. The number of these $\chi\upsilon\mu\upsilon\iota$ are indefinite.¹⁸¹

He holds that same theory of health as Alcmaeon: the harmonious blend or equal balance of an indefinite number of simple opposites.¹⁸² Disease results from a disturbance of these, and can be corrected only by careful attention to the diet and regimen.¹⁸³

Jones suggests that the author of Ancient Medicine was combatting

¹⁷⁸"Hippocrates," Oxford Classical Dictionary.

¹⁷⁹Jones, Philosophy and Medicine in Ancient Greece, p. 26.

¹⁸⁰Jones, Hippocrates, Volume IV, p. xxvii.

¹⁸¹Jones, Hippocrates, Volume I, p. xxi.

¹⁸²Jones, Philosophy and Medicine in Ancient Greece, p. 42.

¹⁸³Jones, Hippocrates, Volume I, p. xxi.

all thinkers who paid too much attention to the effect of four traditional opposites on body health.¹⁸⁴

Only a few ancients attribute Humors to Hippocrates himself. More probably it was written by one of the Hippocratic School. This doctrine probably had origin in the superficial deductions from obvious facts of physiology, but it was strongly colored by philosophical speculation especially by the doctrine of opposites.

At this point it would be of interest to outline the development of the theory of humors to this period. Early speculators noticed a number of concepts which contributed to their formulation of the theory: The animal body requires air, fluid, and solid food; too great heat or cold are fatal to life and many diseases incorporate fever; fluid is a necessary factor in digestion, and blood is connected with life and health. These observations were reinforced by the speculations of philosophers. Anaximander taught that creation was made up of opposites. Later thinkers, based on this teaching, concluded that these were four in number: hot, cold, moist, and dry. Alcmaeon, however, suggested an indefinite number of opposites. These were not *χυμοί*, but only *δυναμεις*. When fluid substances replaced this *δυναμεις*, humoral pathology became substantially developed. Hence, we have the Hippocratic doctrine of humors as described above: blood, yellow bile, black bile, and phlegm. This theory will yet be further developed by later writers.¹⁸⁵

Within the Hippocratic Corpus we find a work entitled Sacred Diseases, a treatise on epilepsy or fits.¹⁸⁶ However, while this work

¹⁸⁴ Jones, Philosophy and Medicine in Ancient Greece, p. 37.

¹⁸⁵ Jones, Hippocrates, Volume I, p. xlvi.

¹⁸⁶ Jones, Philosophy and Medicine in Ancient Greece, p. 24.

is supposed to treat of this, other seizures, including some forms of insanity must not be excluded. We conclude this because while epilepsy conforms to a regular pattern, the author gives elaborate classifications in Chapter IV, which might well be considered forms of insanity.¹⁸⁷

In Book V, he maintains that this disease is no more divine than any other, and is of the same nature as other diseases; moreover the cause is the same as that which gives rise to individual diseases.¹⁸⁸ The cause of this was the stoppage of life-giving air in the veins by a flux of phlegm from the head into them. This function assigned to air is important because it shows the influence of Diogenes of Appolonia.¹⁸⁹

The patient may become speechless and choke, foam, gnash his teeth, twist his hands, or roll his eyes and lose his intelligence.¹⁹⁰

This disease is born and grows from the things that come to the body and leave it, namely air in the form of the winds. However, this is no more troublesome to understand and cure than other diseases, for it is no more divine than others.¹⁹¹ He maintains that it is not due to possession by a god, but to a natural cause.¹⁹² This is a fine example of the characteristic of the Hippocratic School to separate religion from cause-effect observational judgement, and the acceptance of the latter with rejection of the former.

¹⁸⁷Jones, Hippocrates, Volume II, p. 131.

¹⁸⁸Ibid., p. 140. (Sacred Disease, Book V).

¹⁸⁹Ibid., p. 142. (Sacred Disease, Book VI).

¹⁹⁰Ibid., p. 144. (Sacred Disease, Book X).

¹⁹¹Ibid., p. 150, (Sacred Disease, Book XVI).

¹⁹²Ibid., p. 134.

Book XVII is concerned with psychology and insanity. Recognizing the brain as the source of all our feelings, madness comes from the moistness of this organ, the Hippocratics say. Corruption of the brain can be considered in two cases, as it becomes abnormally hot or dry, through bile, or cold and wet, through phlegm. Madness through phlegm is due to the cooling of the brain, which results in its contraction. This leads to loss of memory; the patient is characterized by lethargy, and is quiet and does not make a disturbance. On the other hand, madness through bile results in a noisy evil-doer. The patient's brain is heated by bile running upward from the rest of the body. He is characterized by shouting and crying.

As therapeutics, the writer teaches that one must ascertain the causes, and then apply the opposite power to wear it down.¹⁹³

Elaborate and inclusive though this system may be, other writers built on it to form more complex structures of medical theory.

While earlier Greeks held that by like we know like, Plato (ca. 400 B.C.) worked on a stimulus-response basis.¹⁹⁴ His writings concerned the treatment of the whole.¹⁹⁵ A speculator,¹⁹⁶ his theory of emotions concerned irrational drives made potent by the depth of their foundations in the most primitive or vegetative part of the psychophysical organism.¹⁹⁷ While he tried to prove against the physical materialism of his day that the soul was independent reality, he recognized the importance of the body as instrument, that the soul acts with and through the body.¹⁹⁸

¹⁹⁴Jones, Philosophy and Medicine in Ancient Greece, p. 40.

¹⁹⁵Ibid., p. 17.

¹⁹³Jones, Hippocrates, Volume II, p. 154. (Sacred Disease, Book XVII).

¹⁹⁶Jones, Philosophy and Medicine in Ancient Greece, p. 7.

¹⁹⁷Brett, p. vii.

We see the Orphic opposition between the soul and the body in Plato's Phaedo: where the body is the prison house of the soul, which because of incarnation, can view existence through the bars of the prison and not in its own nature.¹⁹⁹ Yet thought is best when the mind is gathered into herself, when she has as little to do with the body as possible.²⁰⁰ His psychology, says Brock, is notable.²⁰¹ Emotions were used for the full development of human character.²⁰²

The Timaeus is another work in which Plato touches on man, perceptions, the irrational part of man's soul, body, diseases, and health.²⁰³ According to him, there are two souls: the immortal, created by the Demiurge, and the mortal, including perception, which was added by the created deities at the moment of union with the body.²⁰⁴

As far as medicine is concerned, most of his medical allusions are in figurative and mystic language.²⁰⁵ While in the Timaeus he copies the doctrines of the Empedoclean school: the four chief opposites materialized into fire, earth, water, and air, the components of the body and disease, or at any rate some of the chief diseases, an excess of one or the other,²⁰⁶ Heidel states that everything he says about medicine accords with what we find in the Hippocratic Corpus.²⁰⁷ Moreover, he suggests that Plato exhibits in the Phaedo that Hippocrates

¹⁹⁸ Jones, Philosophy and Medicine in Ancient Greece, p. 32.

¹⁹⁹ Morris, p. 13.

²⁰⁰ Ibid., p. 14.

²⁰¹ Brock, p. 13

²⁰² Jones, Philosophy and Medicine in Ancient Greece, p. 34.

²⁰³ "Plato," Oxford Classical Dictionary.

²⁰⁴ Kirk and Raven, p. 360.

²⁰⁵ Brock, p. 13.

²⁰⁶ Jones, Hippocrates, p. xlix.

²⁰⁷ Ibid.

and reason are in accord.²⁰⁸

We find very little concerning mental diseases as such; however, we do see that Plato suggests two states, and insanity is the preponderance of one.²⁰⁹

Brett considers Aristotle at the end of the classic Greek development. A student of his predecessors, he incorporated in his work all that was valuable in earlier schools of thought.²¹⁰ Like Plato, he depended on a stimulus-response basis²¹¹, but his naturalistic study of emotional life was never subordinated to ethical interests.²¹² Favoring psychological empiricism,²¹³ he remarks the human constitution, whatever its composition, was ultimately the same as that of all things. Hence, to know what man is, one must know the nature of the world.²¹⁴ He refused to adopt any purely materialistic or mechanical theory by which life and mind could be reduced to motion and atoms.²¹⁵

He states in De Respiratione:

It is the province of the physician and also up to a certain point of the natural philosopher to discuss the causes of health and diseases, but one must not overlook how they and their subject matter differ. To be sure, what happens bears witness that their

²⁰⁸Heidel, p. 12.

²⁰⁹Jones, Philosophy and Medicine in Ancient Greece, p. 111.

²¹⁰Ibid., p. 40.

²¹¹Ibid., p. 6.

²¹²Ibid., p. 34.

²¹³Ibid., p. 150.

²¹⁴Heidel, p. 22.

²¹⁵Jones, Philosophy and Medicine in Ancient Greece, p. 7.

fields are up to a point co-terminous; for all the better educated and inquiring physicians discuss the philosophy of nature and derive their principles from it. The most gifted philosophers almost always in the end lead up to the principles of medicine.²¹⁶

Jones comments that the formulæ of Aristotle are the true starting points of scientific psychology.²¹⁷

Aristotle again says:

The study of the soul belongs to the province of the natural philosopher, either the soul in its entirety, or such part of it as has to do with the body.²¹⁸

Although Aristotle has a tendency to oppose a substance view of mind in an attempt to integrate mind and nature, the substance approach continually creeps into his accounts.²¹⁹

The properties of the soul do not exist apart from the physical matter of living things, in which such qualities as courage and fear are expressed, and are not to be regarded as a line on a surface.²²⁰

He failed to break away from the Platonic influence, that mind is a substance²²¹ yet he states that active reason has no bodily organ, and alone survives death.²²² The form, or "soul", of Aristotle, was "the first actuality of a natural body furnished with organs."²²³ Again, mind is the thing when thought,²²⁴ but sense is perception of form without matter.²²⁵

²¹⁶Heidel, p. 22.

²¹⁷Jones, Philosophy and Medicine in Ancient Greece, p. 12.

²¹⁸William Hammond, translator, Aristotle's Psychology, (London, 1902), p. 8. (de Anima, I, 1, 16).

²¹⁹Morris, p. 16.

²²⁰Hammond, p. 9 (de Anima, I, 1, 19).

²²¹Morris, p. 20.

²²²Kirk and Raven, p. 360.

²²³Morris, p. 16.

²²⁴Ibid., p. 18.

²²⁵Jones, Philosophy and Medicine in Ancient Greece, p. 41.

He arranged and classified the acts of the soul.²²⁶ According to him, the active reason creates an intelligible world in the sense of constructing its intelligibility, while its real content is given in the materials of passive reason which are delivered from without.²²⁷

By eliminating the religious nature of the soul, and eliminating the supernatural, only the natural remains. This is the method of Aristotle.²²⁸

Yet, while Aristotle's treatise on the soul preceded the work in the Alexandrian School, which discovered nerves,²²⁹ his works may be considered the most mature theory of mental function prior to their discovery.²³⁰ In fact, Brett says that in the two thousand years since Aristotle, the science of the soul has approached the Aristotelian ideas from the point of the then modern (1902) psychologists.²³¹

²²⁶ Jones, Philosophy and Medicine in Ancient Greece, p. 31.

²²⁷ Hammond, p. lxxix.

²²⁸ Jones, Philosophy and Medicine in Ancient Greece, p. 31.

²²⁹ Ibid., p. 21.

²³⁰ Ibid., p. 26.

²³¹ Ibid., p. 6.

About 300 B.C., the school of Alexandria grew into prominence. The two earliest medical teachers there were Herophilus of Chalcedon and Erasistratus of Chios. While Herophilus might be regarded as the founder of anatomy, Erasistratus may be considered the founder of physiology.

Probably the first to dissect the human body in public, Herophilus recognized the brain as the central organ of the nervous system, and regarded it as the seat of intelligence. He was the first to recognize the nature of the nerves, which he connected with motion and sensation. However, Herophilus failed to separate them clearly from tendons and sinews.

Erasistratus, essentially a rationalist, invoked the idea of Nature as a great artist, acting as an external power, shaping the body according to the ends to which it must act. His theory, based on atoms and the void, included nevertheless a pneumatistic theory to make his physiology intelligible. Pneumatism is the belief that the phenomena of life are associated with the existence of a vapor, pneuma, which permeates the organism and causes its movements. This pneuma is held to have some affinity with the air we breathe.

He observed that every organ was equipped with a triple system of vessels: vein, artery, and nerve. The air was taken in by the lungs, changed to a particular pneuma, the vital spirit, which was transmitted to the various parts of the body by arteries; from there, to the brain, where it was changed into a second kind of pneuma, the animal spirit,

which was responsible for the messages to the various musculature
conveyed by the nerves.^{225a}

^{225a} Charles Singer and E. Ashwood Underwood, A Short History of
Medicine (Oxford, 1962), pp. 48-51 passim.

Turning now to Rome, we can divide Roman medical history into two periods: before the introduction of Greek medicine, and the history of Greek medicine at Rome. However, insofar as pre-Hellenic Roman medicine, known chiefly from Cato and Pliny, fragments, laws, inscriptions, and allusions in Latin authors,²³² is insignificant, we shall begin with the first Greek in Rome.

It is generally believed that Asclepiades (ca. 124 B.C.)²³³ introduced Hellenic medicine to Rome in the last century B.C.²³⁴ His theory was solidist, against the humors of Hippocrates.²³⁵ Based on the atomic theories of Democritus and Epicurus,²³⁶ he taught that the body consisted of atoms and interpassages.²³⁷ Since all functions resulted from the movements of these atoms,²³⁸ disease was a disproportion between the atoms and the passages, when the movements are abnormal.²³⁹

While he mentions insanity in his works, he suggests as therapy fast and sleep, together with massaging, although he warns that excess massaging may produce lethargy.²⁴⁰

²³² John Sandys, A Companion to Latin Studies (Cambridge, 1943), p. 715.

²³³ Ibid., p. 713.

²³⁴ Brock, p. 7.

²³⁵ Ibid., p. 17.

²³⁶ Sandys, p. 718.

²³⁷ Ibid., p. 717.

²³⁸ Brock, p. 17.

²³⁹ Sandys, p. 718.

²⁴⁰ A Drabkin, translator, On Acute Diseases and On Chronic Diseases: Caelius Aurelianus (Chicago, 1950), p. xvii.

Cornelius Celsus (ca. 14-37 A.D.)²⁴¹ held a moderate theory between empiricism and methodism. He concluded that theory and practice were equally indispensable.²⁴² Historically, he thought that scientific medicine was relatively late in developing, and owed much to philosophers such as the Pythagoreans, Empedocles, and Democritus. Moreover, he felt that it was first regarded as a branch of philosophy since the cure of diseases and the investigation of nature were fathered by the same writers.²⁴³

In the Prooemium, he writes that the art of medicine descends from a consideration of the common characteristic of a flux to a particular case.²⁴⁴ In this, he bases himself on such philosophies as Heraclitus. He feels that the art of medicine ought to be rational, but should draw instruction from evident causes, rejecting all obscure ones from the practice of the art, though not from the practitioner's study.²⁴⁵ In healing, it was necessary to take note of both common and particular characteristics.²⁴⁶ Concerning remedies, the practitioner should seek every novel plan from evident causes; he should note what produced the disease and should be cognizant of the man's temperament.²⁴⁷ This is a surprisingly modern viewpoint.

²⁴¹ "Celsus," Oxford Classical Dictionary.

²⁴² Avery, p. 265.

²⁴³ Heidel, p. 20.

²⁴⁴ Celsus, De Medicina (Cambridge, 1938), Prooemium, l. 68.

²⁴⁵ Ibid., l. 74.

²⁴⁶ Ibid., l. 65.

²⁴⁷ Ibid., l. 52.

Disease he attributes to humor and its movement,²⁴⁸ and the phlegm is rendered thinner by salted and acrid and acid materials.²⁴⁹ Here he resembles again his predecessors in attributing disease to phlegm, the humors, and their movement.

Celsus devotes almost an entire book to insanity. Identifying it as the Greek "phrenesis," he lists symptoms such as delirium. Accompanied by a serious fever, it is usually of short duration, though it is a serious matter. When the onslaught of the paroxysm is relieved, the mind recovers immediately. His therapy is the same as for fever: a cooling of the area affected. For another type, he recognizes continuous dementia. The patient suffers illusions and the mind loses control.²⁵⁰ While in some types of insanity some are sad, in others they are hilarious. Some patients are readily controllable and rave in words only, though others are rebellious and act violently. Of these latter, some do harm only by impulse, while others plan their actions. Celsus's therapy for the violent is to fetter them and not to trust them. While the ancients, believing that their practice would help quiet the patient's spirit, suggested keeping him in darkness, and Asclepiades suggested keeping him in light as darkness itself was terrifying, Celsus maintains a therapy that would depend on the individual. When there would make no difference, he keeps the strong patients in a light room, and the weak patients in a dark one.

²⁴⁸ Celsus, Book II, l. 6.

²⁴⁹ Ibid., l. 23.

²⁵⁰ Ibid., Book III, l. 18, 1-7.

As far as a delirious person is concerned, Celsus suggests restraining him till the delirium subsides. As Asclepiades, he also suggests promoting sleep by massage.

Celsus also believed in bleeding, if the strength of the patient allowed. He instructed shaving the head and fomenting it with water and herbs. For some, the practitioner should relieve their empty fears, an interesting psychoanalytical insight; for others, he should restrain their violence by physical means. While hysterical patients should be restrained by threats, melancholy ones should be exposed to music and noise. The physician was to agree with the patient rather than oppose him, awaken his interest, and induce sleep.²⁵¹

Celsus also described another sort of insanity, of longer duration, which begins without fever, but later excites a slight fever. Consisting of a depression caused by black bile, its therapy included abstinence and purgation, together with psychological therapy: kindness and reproof of depression as being without cause.

He describes even another kind of insanity: more prolonged, but not dangerous to life, for the patient remains robust. This is of two types: 1) in which the patient is duped by phantoms, and 2) in which he becomes foolish in spirit.

In the first case, the patients are either depressed or hilarious. The latter syndrome is less serious. As therapy, he suggests a purge with black hellebore for the depressed, and white hellebore for the hilarious.²⁵²

²⁵¹Celsus, Book III, 18, 1. 7.

²⁵²Ibid., 11, 19 ff.

In the second case, in which the patient becomes foolish in spirit and mind, he suggests torture: shave, fetter, or flog the patient. The purpose is to terrify suddenly and thoroughly frighten and agitate the spirit, so that some change may occur when the mind has been withdrawn from its previous state.

As a footnote, he describes delirium as a product of fright, to be treated with a dietetic regimen.²⁵²

The last writer, and perhaps the most significant by far, who influenced medical views till the advent of modern day medicine, was Galen of Pergamum (129-199 A.D.), an eclectic dogmatist as a philosopher and a physician. His doctrine of four humors was the basis of his pathology.²⁵³ Based on Hippocratic theory and naturism (a first-hand empirical contact with nature)²⁵⁴ his aim in medicine was to unite conflicting sects and divergent streams of doctrine, and to frame a synthesis which should combine his own results with that of his predecessors.²⁵⁵ What he eventually did was bring logos or reason to bear on the essentially empirical system taught by Hippocrates.^{255a}

One of his theories was that of temperament, a restatement of the theory of the humors in a different form. All were reduced to four types of temperaments (κράσις) depending on which one predominated from the combination. Hence, there were only four kinds of healthy equilibria, whether hot, cold, dry, or moist.²⁵⁶ This theory of humors was, by now, an old tradition. Empedocles was the first to expound it in his earth, air, water, and fire. Hippocrates later took it up with his dry, wet, cold, and hot. From him it developed into the theory

²⁵²Celsus, Book III, 21-22.

²⁵³"Galen," Oxford Classical Dictionary.

²⁵⁴Brock, p. 75.

²⁵⁵Sandys, p. 723.

^{255a}Brock, p. 25.

²⁵⁶Sarton, p. 52.

of humors of blood, phlegm, yellow bile, and black bile. This theory of the four humors, then, is the microcosmic form of the macrocosmic theory of the four elements or qualities.²⁵⁷

Galen borrowed from the Greek philosophers the general idea of health: a state of equilibrium of the four cardinal fluids; with disease as their faulty admixture.²⁵⁸ He concluded that it was impossible for any disorder to remain single, for of necessity it joins something other to itself; warmth consumes moisture, and produces dryness. Hence, disease was manifested in four types of compound disorders. In addition, from any disorder, all parts of the body are equally affected.²⁵⁹ The pathological conditions of the body are of two kinds: some are inevitable and intrinsic, having the elementary and primary parts of the body; while others are unequally constituted, not inevitably arising from ourselves, but affecting our body none the less.²⁶⁰

Another division of disorders is that of similar or dissimilar conditions. The former is worse, when we possess one humor to an extreme degree. The latter can be either the most pathological, as the principal part of the body prevails in opposite constitutions, or more moderate, when the subordinate parts are so disposed.²⁶¹ As the substances of all animals are in perpetual flux, unless we replace what has flowed away disease will occur.²⁶² Here again we see the influence of his predecessors, in particular Heraclitus.

²⁵⁷Sarton, p. 52.

²⁵⁸Ibid., p. 13.

²⁵⁹Robert Green, Galen's Hygiene, (Illinois, 1951), p. 238 (Bk VI, Ch. II).

²⁶⁰Ibid., p. 237.

²⁶¹Ibid., p. 235.

²⁶²Ibid., p. 238.

As all the organs become dryer, not only are their functions performed less well, but the vitality becomes more feeble and restricted ... there is a flux of the entire substance, arising from intrinsic warmth.²⁶³

Thus, we may infer that insanity was of like nature as any other physical disease: an imbalance of humors, either too dry, too moist, too hot, or too cold.

Concerning the pneuma or spirit, Brett says that this doctrine travelled from Empedocles to Galen in unbroken development.²⁶⁴ According to Galen, there are three degrees of refinement of the pneuma: natural spirits active in the purely vegetative functions, animal spirits located in the heart and regulating the beat of the heart and bodily temperature, and a special psychic pneuma in the brain and nerves, to which are assigned intellect and will. We shall notice that both nerves and pneuma are used, whereas before pneuma was a substitute for nerves.²⁶⁵

Galen tried to make a classification of bodily functions which would include psychological types of behavior in the organism. Hence, he seems to believe in something that acts like a mind and is wholly unique.²⁶⁶

Although Galen and the Hippocratic school are similar in certain respects, while the Hippocratic doctrine was observational and deductive, Galen was experimental and inductive.²⁶⁷ His concept of therapeutic

²⁶³Green, p. 7.

²⁶⁴Jones, Philosophy and Medicine in Ancient Greece, p. 26.

²⁶⁵Ibid., p. 26.

²⁶⁶Ibid., p. 30.

²⁶⁷Harkins, p. 12.

doctrine sprang from Hippocratic thought and more specifically from the teaching of the dogmatists,²⁶⁸ who made the principles or dogmata which Hippocrates had discovered the basis of their science and practice. More specifically, they were called Logicians or Rationalists, who based their operation on these principles by use of reason or logos rather than empirical observation.^{268a} While Hippocratic medicine could be termed humoral and philosophical, Galen's can be termed anatomic.^{268b}

Galen was an encyclopaedist as well as an original writer. His works, filling a good twenty-two volumes (Kuhn edition, 1829), include resumes of other writers as well as his own thoughts.

While we have treated in considerable detail Galen's concept of the humors, two selections in particular from his work are of interest to us because of their relation to mental health.

Chapter XI in Book III concerns Epilepsy. Defined as a symptom or disease affecting the central nervous system, this does not seem to have direct relation to mental health, but on closer examination, we see the connection. Galen distinguished three types of "epilepsy." The first, cortical epilepsy, was attributed to localized irritation of part of the brain cortex. The second was sympathetic epilepsy, caused by brain irritation by other parts of the body which were primarily affected. Symptoms of this malady were suggested to be convulsive efforts to repel this invasion. The third type, idiopathic, was attributed to the brain as the primary cause. The condition is due to dyscrasis of humors produced by too much cold. Allied to this are phrenitis and other insanities. This is the section in which we are interested. Dyscrasis will be explained in the following section.

²⁶⁸Harkins, p. 12.

^{268a}Brock, p. 13.

^{268b}Felix Marti-Ibanez, Ariel (New York, 1962), p. 129.

Apoplexy was considered a more localized condition due to effusion of fluid into the ventricles of the brain.^{268b}

As an aside at this point, Galen's description of the brain and of the vascular system is inferior to his account of the bones and muscles. His account of the nervous system, other than the brain, occupies an intermediate position, but his account of the origin of the nerves from the brain has left its traces to present day anatomy.^{268c}

The second section which we shall consider is That the Mental Faculties Follow the Bodily Constitutions. This is essentially the source of the general discussion above concerning the humors. To Galen, the soul is a "crasis" or harmony of the body. He felt that mental powers are consequent upon the bodily temperaments, and are useful for those who wish to keep their own minds in order. While agreeing with Plato that there are three kinds of soul (vegetal, animal, and rational), he states that not every kind of body is fitted to receive the rational soul. However, he can give no proof of this because he admits he does not know what the substance of the soul is, if he regards it as belonging to the class of incorporeals.

He does not know why an excess of yellow bile in the brain causes delirium, or an excess of black bile, melancholia. Yet, he holds that the physical temperament changes the function of the soul and may even drive it out of the body. He cites Plato and Aristotle, and the Stoic writings to uphold his thesis, concluding that it agrees with clearly observed facts; that the mind is helped or harmed by the bodily crases.

^{268b} Brock, p. 220.

^{268c} Singer and Underwood, p. 62.

This is an excellent example of Galen's naturism, his conclusions based on observable facts.^{268d}

Galen was a reactionary in many ways, holding that the substance of the world was continuous. He rejected the atomistic theories, and was an anti-evolutionist.²⁶⁹ Nevertheless, he is firmly based on the works of his predecessors, as we see in his doctrine of the humors. His physiology and pathology were speculative, while his therapy was empirical.^{269a} Yet he is somewhat unique in his development of his own theories, and presents views which have lasted till modern medicine began. He can well be considered the writer who influenced medical thought to the advent of modern medicine the most.^{269b}

^{268d}Brock, p. 231 ff.

²⁶⁹Sarton, p. 55.

^{269a}Marti-Ibanez, p. 129.

^{269b}Sarton, p. 88.

With our treatment of Galen, we come to the end of our individual discussions. In summary, we see a definite development of the theory of diseases, and hence of mental disorders, paralleling and enmeshed in philosophical speculations. From the moist theory of the nature of the Universe we obtained Alcmaeon's theory of disease, that of opposites. From the Pluralists and the Atomist school we obtained the Hippocratic theses; and based on all these do we find Asclepiades, Celsus and Galen.

It is not surprising that at times these works do not agree on principles, for evolution implies development in new and different paths, and yet originating from one point and maintaining some sort of unifying structure. From the opposites of Alcmaeon, to the humors of Hippocrates, to the atoms of Asclepiades, to the practical aspect of Celsus, to the temperaments of Galen, though they may differ, we see the pattern of development across the years.

What is more interesting is how thoroughly their theories of diseases, at least with regard to mental disorders, and at least in the final form, were accepted for millenia.

It seems therefore that ancient medical theories were a direct result of discussion of concepts of the universe as ascertained by ancient philosophers, that medical views evolved on a parallel and in intimate relation with philosophical speculation, and that mental diseases and disorders were bound up in this idea.

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